

Clemson IMPACTS

Clemson University Public Service Activities

Fall 2007



Intelligent
chicken feed
prevents diseases



Rural
communities
benefit from
Compassion
Project



Savannah River
forum focuses on
water quality



Bacterial DNA
may be used to
improve foods



Summer camps
serve kids from
around the world



*Quiet Reflections:
The Clemson
University Forest*



Letter from the Vice President

Microbiologists are using nanotechnology – particles a fraction the thickness of a human hair – to prevent diseases in poultry houses without using antibiotics. The particles lock onto bacteria and purge them through the digestive system. As a result, flocks are healthier and there is little chance of creating drug-resistant germs.

Service-learning students are developing marketing plans that help non-profit organizations provide new services and improve their business operations. It's a win-win situation. The students learn valuable career skills and the charitable groups are able to help more people in the community.

The Savannah River represents a model for how water issues cross political boundaries. This river provides water for municipalities, electric power, recreation, farms and industries in three states. Science-based information is needed to guide public water policy decisions, particularly as we enter a period of prolonged drought.

Most people think that all bacteria are harmful but some play an essential role in producing food, such as yogurt and cheese. Experiments with one of these bacteria shows promise to prevent micro-organisms that can cause foods to spoil, thereby extending the usable shelf life.

Many of the next generation agriculture and natural resources professionals select these careers because of the S.C. Commissioner's School for Agriculture, a summer program for high school students held at Clemson in partnership with the state Department of Agriculture.

Sincerely,

John W. Kelly

Vice President for Public Service and Agriculture

Knowledge for living. Knowledge for life.

CLEMSON
PUBLIC SERVICE

Clemson Impacts, a quarterly publication of Clemson Public Service Activities, is available to South Carolina residents upon request. *Clemson Impacts* is also available on the web www.clemson.edu/public/

Vice President
John W. Kelly

Editor
Debbie Dalhouse

Designer
Rachel Mumford

Comments, questions and subscription requests:
Editor *Clemson Impacts*, 130 Lehotsky Hall,
Clemson, SC 29634-0101, ddalhou@clemson.edu,
(864) 656-6737.

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Writers
Pam Bryant
Kerry Coffey
Peter Kent
Tom Lollis
Diane Palmer

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www.clemson.edu/yli/



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Intelligent chicken feed prevents diseases

By Peter Kent

More than 200 million chickens are raised in the Palmetto State, in flocks up to 300,000. To keep them healthy, Clemson scientists are using microscopic particles as a drug-free alternative to prevent disease.

An illness in a few birds can spread quickly through a facility that houses thousands. Bacteria can build up antibiotic resistance, making the drugs less effective. The team of scientists, led by microbiologist Jeremy Tzeng, has discovered a promising drug-free alternative in nano-technology.

Working with particles 1/100,000th the thickness of human hair, they have built nanoparticles that mimic the host cell surface and lock to the targeted pathogens. The particles then bind together and are purged through the digestive system.

Tzeng calls it intelligent chicken feed. "If we use this physical purging, physical removal, we are not using antibiotics so the chance of the microorganism becoming resistant to it is really small," he said. Colleagues on this research project are Fred Stutzenberger, Robert Latour and Ya-Ping Sun.

For more information: Jeremy Tzeng, 864-656-0239, tzuenrt@clemson.edu.



Photo by Peter Kent

Fast action reduces corn losses

By Tom Lollis

An early April freeze left corn fields all over the state looking dead, but a Clemson corn expert and county Extension agents helped farmers save millions of dollars through wise decisions on replanting.

Pawel Wiatrak, agronomist at Edisto Research & Education Center, sent a newsletter to county agents, growers and seed companies explaining the growth habits of corn and urging them to evaluate the extent of cold damage by looking for signs of life below the soil surface.

He and Extension agents helped growers evaluate the damage and make replanting decisions. In some counties no corn had to be replanted. In others it was up to 80 percent. Worst losses were in Lexington, Sumter, Clarendon, Williamsburg, Horry, Allendale and Colleton counties.

Wiatrak estimates that 27 percent of the state's corn was replanted at a cost of about \$3 million. If all the corn had been replanted, the cost would have been more than \$13 million.

For more information: Pawel Wiatrak, 803-284-3343, ext. 261; pwiatrak@clemson.edu.



Photo by Tom Lollis

Pesticide applicator recertification deadline

Pesticide applicators need to obtain continuing certification hours before time runs out. The deadline is December 31, 2008 for commercial and non-commercial applicators licensed in 2003 or earlier. It is December 31, 2009 for private pesticide applicators licensed in 2004 or earlier.

“Commercial applicators must earn 10 recertification hours every five years through their professional associations,” said Bob Bellinger, Clemson University Extension pesticide coordinator. “Private applicators must earn five hours through Clemson Extension programs offered state-wide.” He encourages pesticide applicators to sign up early for the training.

Two websites offer information on recertification courses: <http://entweb.clemson.edu/pesticid/PArecert.htm> and <http://regfocus.clemson.edu/dpr/>.



Photo by Tom Lollis

New thatch management demonstrated at turf field day

Dara Park, turfgrass horticulturist at Clemson's Pee Dee Research & Education Center in Florence, explains a new method of thatch management for golf courses. Roy Kibler, left, of North Augusta and Wayne Chappells of Sumter hear how the DryJet process works with high-pressure water to move the thatch layer and sand to a lower soil profile, then fill holes with new sand. Some 225 turfgrass industry representatives attended the field day for the latest research on turfgrass management, new varieties, insect and disease management.

For more information: www.clemson.edu/turfornamental/.

Organic vs. synthetic fertilizer – jury is still out

By Tom Lollis

Is organic fertilizer better than synthetic fertilizer? Researchers at the Coastal Research & Education Center in Charleston tested both types on feverfew, a nutraceutical plant used to treat migraines.

“Organic medicinals have a premium price, and if the active compounds can be increased naturally, the value of the feverfew crop is greatly enhanced,” said Brian Ward, a Clemson master's student in plant and environmental sciences. For this study, he collaborated with Clemson plant physiologist Damayanthi Ranwala and Greg Baccari, a master's student at the College of Charleston.

The test compared a synthetic 15-5-15 fertilizer and a similar formulation of organic nutrients, applied through drip irrigation for 12 weeks to 350 genetically identical plants. The results showed that both types of fertilizer produced comparable levels of parthenolide, an anti-inflammatory compound in feverfew.

Another test investigated the effect of natural growth regulators, which increased parthenolide content by 11 percent over the control plots.

For more information: Brian Ward, 843-402-5399, ext. 4244, bw@clemson.edu.



Photo by Tom Lollis

Brian Ward, right, and Greg Baccari loading samples into the High Performance Liquid Chromatograph for analysis of parthenolide levels.

Cattlemen get tips to deal with forage shortage

By Tom Lollis

The prolonged drought is causing shortages of grazing and hay for cattlemen. Until conditions improve, they are being urged to bale residues from corn and soybeans as feed.

“Baled corn stalks and soybean straw are not nutrient dense, but they're filling and can really help in the short term,” said John Irwin, Extension animal scientist, at the Edisto Research & Education Center field day in Blackville.

Producers could also consider feeding composted poultry litter combined with cracked or ground corn during an emergency. Beef cattle can convert the nitrogen in the litter into essential amino acids.

John Andrae, Extension forages specialist, said cattlemen should plant small grains in the fall – such as rye, ryegrass and oats – to provide feed for winter and early spring. He said pastures in many parts of South Carolina, particularly the Piedmont, are suffering from drought stress.

The field day drew approximately 350 participants, who also heard the latest research news on peanuts, precision agriculture, cotton, soybeans, watermelons, pumpkins and peppers.

For more information: John Irwin, 864-984-2514, jwirwin@clemson.edu; John Andrae, 864-656-3504, jandrae@clemson.edu.



Growing produce and local communities

By Kerry Coffey

One of the contributing factors to high obesity rates is that the neediest citizens frequently cannot afford, or do not have access to, fresh produce.

To combat this problem, the Lowcountry Food Bank and Clemson's Institute on Family & Neighborhood Life (IFNL) developed the Growing Foods Locally program. In the pilot study in Beaufort County, this program brought together eight local farmers and 18 community agencies who distributed more than 750,000 pounds of fresh produce to needy families in the first year.

The food bank is the single most important source of food and related household items for the participating agencies. In addition to providing fresh produce, the food bank has dramatically overhauled its entire inventory so that significantly more nutritious foods are now available.

"New management systems, inventorying procedures, and service functions have been added, including some that make the food bank a promising economic engine for the region," said Kathy Robinson, project director for IFNL.

For more information: www.clemson.edu/ifnl/ or Kathy Robinson, 864-656-6284, wilson5@clemson.edu.

Service learning supports non-profits

By Kathy Woodard

Charitable organizations are receiving free strategic market analyses and marketing plans developed as service learning projects by Patricia Knowles's marketing classes.

Past clients include the Arts Center, Goodwill Business Support Services, Clemson Community Care, and the Anderson Oconee Council on Teen Pregnancy Prevention. As a result of students' recommendations and training, these organizations have been able to offer new services, raise additional funds, and improve business operations.

"A marketing analysis such as the one we do would cost between \$40,000 and \$50,000 through a professional firm, so this is something that truly benefits the organization and is a tremendous learning experience for the students," Knowles said.

Her work was recognized with the Clemson University Service Learning Advocate Award for 2007-2008, presented by the Service Alliance. This award is presented each year to a Clemson faculty or staff member who demonstrates an exceptional commitment to serving the community through classroom service learning projects and community partnerships.

For more information: www.clemson.edu/servicealliance/ or Patricia Knowles, 864-656-0913, kpatic@clemson.edu.



Rural communities benefit from Compassion Project

By Kerry Coffey

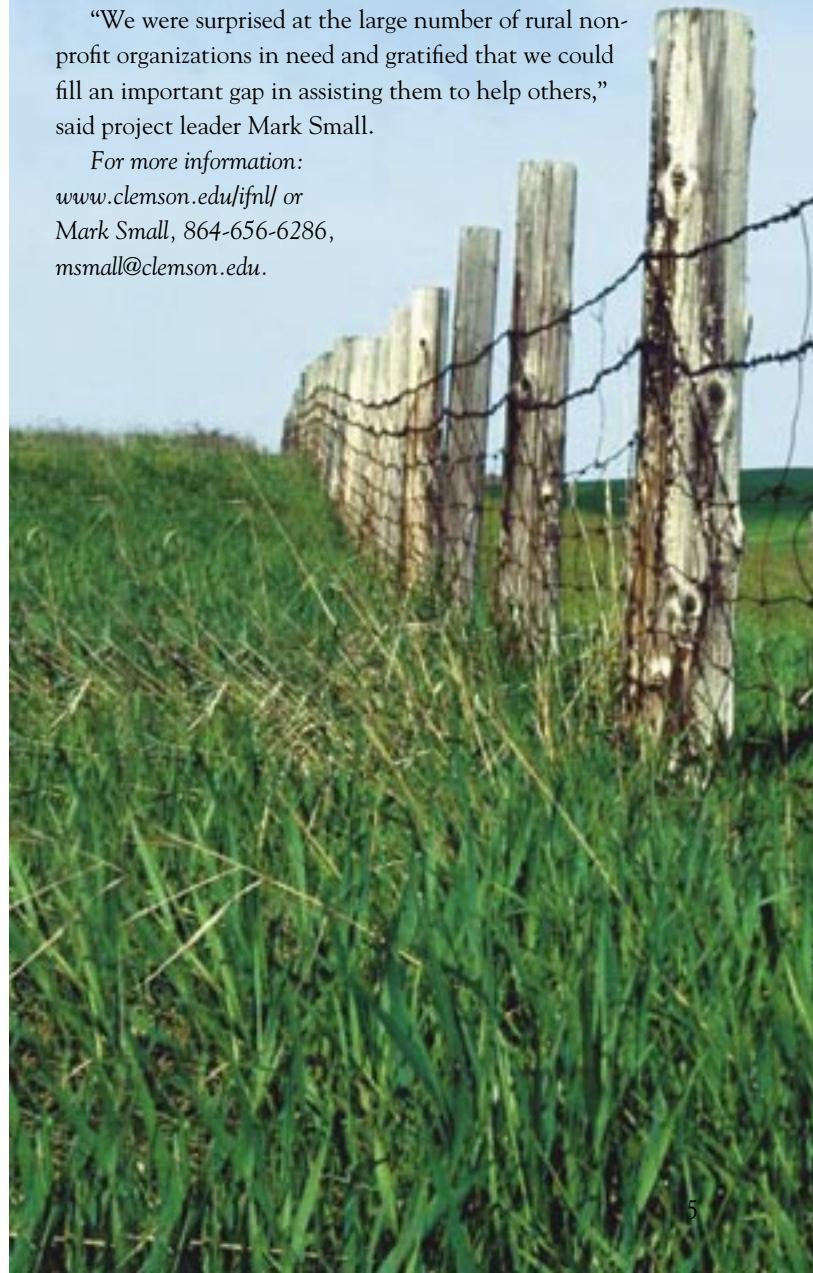
In the past five years, 121 rural faith and community-based organizations across the state have been helped through the South Carolina Rural Communities Compassion Project.

The federally funded project, led by Clemson's Institute on Family & Neighborhood Life, provided monetary grants and technical help to rural non-profit organizations. In partnership with state philanthropic foundations, the project distributed \$1.5 million in grants ranging from \$5,000 to \$20,000.

These grants helped local groups address social problems related to hunger, homelessness, at-risk children, welfare-to-work transitions, addiction and incarceration. Technical help was provided to nearly 1,000 participants through personal contacts, workshops and distance learning programs.

"We were surprised at the large number of rural non-profit organizations in need and gratified that we could fill an important gap in assisting them to help others," said project leader Mark Small.

For more information:
www.clemson.edu/ifnl/ or
Mark Small, 864-656-6286,
msmall@clemson.edu.



Savannah River forum focuses on water quality

By Peter Kent

The Savannah River affects lives and livelihoods in 44 counties in three states. A September forum in Augusta presented scientific reports and proposals for managing the river, with a keynote address from Georgia Governor Sonny Perdue.

Co-hosted by the Southeastern Natural Sciences Academy and Clemson's Restoration Institute, the forum brought together scientists, environmentalists, engineers, regulatory agencies and economic developers.

Issues included: sharing water supplies and waste-load allocation, addressing dissolved oxygen rates in the Savannah Harbor, preserving the ecology of the river basin, maintaining commercial and recreation usage, and broadening awareness of the economic impact the river has on the region.

"Government leaders realize that the issues are complex and that universities in all three states are essential for providing sound, science-based information to inform and guide public water policies," said Gene Eidson, forum organizer and director of restoration ecology at Clemson.

For more information: Gene Eidson, 864-656-2619, geidson@clemson.edu.

Photo by Peter Kent

Heat offers kudzu solution

By Peter Kent

Kudzu has become a well-established invasive weed in the southeastern United States, occupying more than one million forestland acres. Plant scientists have been researching alternatives to herbicides, which can wash into streams, affect sensitive vegetation and be costly to apply to large areas.

One solution is to use heat to kill the kudzu root crowns that allow the plant to spread. Research in the Clemson Experimental Forest found that covering the plants with heavy-duty polyethylene sheeting for four weeks in two successive years is an effective control for environmentally sensitive areas and urban locales where herbicides would be inappropriate.

The work was begun by Larry Nelson, associate professor of forestry and natural resources, and completed by master's student Casey Newton. Newton graduated from Clemson in August 2007 and joined an Atlanta-based firm that manages environmental quality on military bases. About the same time as his graduation, the kudzu research results were published.

For more information: www.kokudzu.com/page19.html.



Photo by Peter Kent

Cleaning up streams one farm at a time

By Peter Kent

Water is essential to our lives. In Oconee County, Extension agent Morris Warner has made it his mission to work with farmers and homeowners to reduce pollution and improve water access for cattle. He has secured more than \$3.5 million in federal grants to achieve his goals.

Cattle that get into streams pollute the water and break down stream banks. They also muddy the drinking water, which can cause health problems. Through grants, Warner helps farmers afford to put in wells, watering troughs and fences to keep cattle away from the streams.

"This program has been a godsend," said Carol Hendrix, a cattle producer in Westminster, S.C.

In addition, aging septic tanks pose a significant risk to public health and property values. Federal funding helps homeowners by covering part of the cost to pump out clogged septic tanks and install permanent pump-out pipes, enabling better tank upkeep in the future. Next Warner hopes to build a similar program for the Greenwood area.

For more information: Morris Warner, 864-638-5889, mwarner@clemson.edu.



Photo by Peter Kent

Wildlife habitat practices evaluated for USDA

By Tom Lollis

Results of a three-year study of federal Farm Bill guidelines for improving wildlife habitat on farms and woodlands will be reported to the USDA in November.

Laura Knipp, a Clemson master's student, has been working with T.J. Savereno, a wildlife biologist at the Pee Dee Research & Education Center, under the direction of professor Greg Yarrow. The study was funded by a grant from the USDA Agriculture & Wildlife Conservation Center and the Natural Resources Conservation Service.

In 2004 they established replications of eight wildlife habitat practices: hedgerows, riparian buffer zones, native warm season grass plots, filter strips, field borders, forest openings, forest stand improvement and prescribed burning.

Knipp's preliminary observations indicate that plant species diversity has increased in treatment areas, with a corresponding increase in wildlife species such as rabbits and bobwhite quail. She also noted that patience is required for planted warm-season grasses to become established. It took three years for planted grasses to win out over pigweed and sicklepod in year one and horseweed in year two.

For more information: Greg Yarrow, 864-656-7370, gyarrow@clemson.edu.



Photo by Tom Lollis

Hydrologist studies stormwater runoff in coastal areas

By Tom Lollis

As more land is paved or covered by houses, less open land is available to absorb rain water. Heavy rains can wash motor oil and other chemicals off parking lots and into streams, called stormwater runoff. This is a growing concern in South Carolina's rapidly developing coastal areas.

To help developers, state and county agencies, homeowners and municipal officials learn how to reduce runoff, stormwater engineer Anand Jayakaran is researching natural and developed watersheds.

"I will be researching watersheds and how they are affected by rapid development along the coast," said Jayakaran, who is based at the Baruch Institute of Coastal Ecology & Forest Science in Georgetown. "I'll be looking at how urban development affects the quantity of runoff from storm events and studying ways to mitigate that runoff."

Jayakaran will use less-developed watersheds as a baseline to show how stormwater affects the land in a more natural setting.

For more information: Anand Jayakaran, 843-546-1013, ext. 223; ajayaka@clemson.edu.



Photo by Debbie Dalhouse

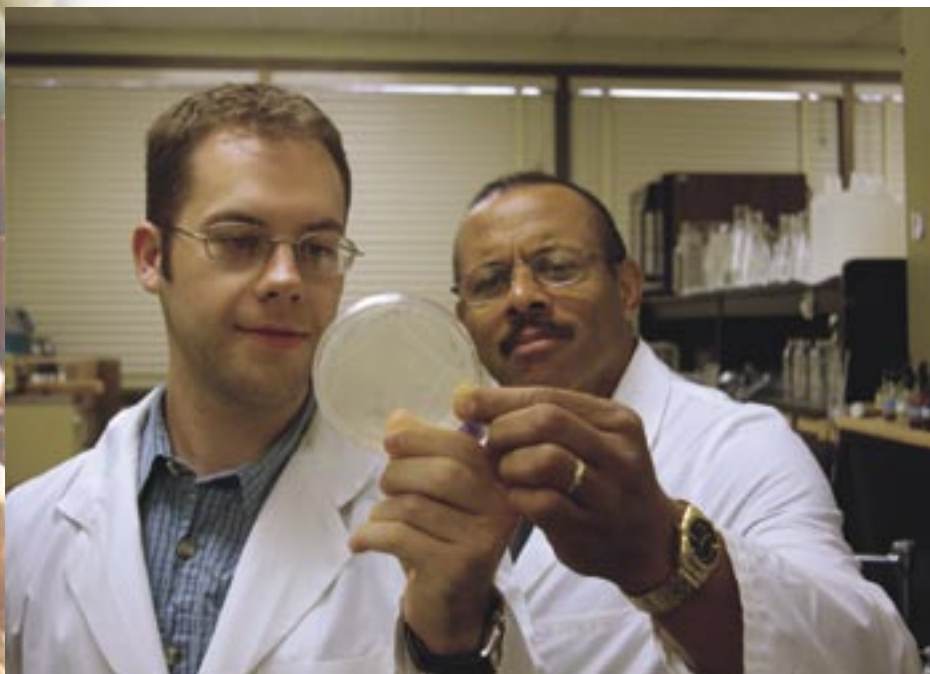


Photo by Peter Kent

Bacterial DNA may be used to improve foods

By Peter Kent

Finding ways to make food healthier, safer and less expensive is a priority around the world. Clemson research in this area can benefit both food producers and consumers.

Microbiologist Tom Hughes and his graduate students are exploring the DNA of *Lactobacillus debruueckii*. This bacterium is widely used as starters in yogurt and cheese. By understanding its genetic characteristics, scientists can improve the commercial usefulness, such as fermentation rate, flavor and sweetness.

Experiments with cottage cheese showed that as the numbers of lactobacilli increased, the numbers of spoilage organisms decreased. The results indicate that this bacterium could help control spoilage in cottage cheese, potentially extending its shelf life.

Hughes's research also may lead to health benefits. Unlocking the genetic code may uncover DNA fragments that can be used to make proteins that attack bacterial infections. These proteins, called bacteriocins, are potentially more effective than antibiotics. Disease-causing bacteria can become resistant to antibiotics but not to bacteriocins.

For more information: Tom Hughes, 864-656-5433, t020509@clemson.edu.

Customers drive large restaurant portions

By Peter Kent

Many restaurant chefs are serving food portions that are two times to four times the size recommended by federal dietary guidelines. This is a particular concern in South Carolina, which ranks eighth nationally in obesity rates.

"Chefs are involved with a lot of food Americans eat, and this survey could provide information that could be used to develop ways to improve our health," said lead author Marge Condrasky, a Clemson food scientist.

The survey identified the factors chefs use to decide portion size: 70% presentation, 65% cost, and 52% customer expectations. Only 16% said they consider calories.

"The results suggest that food portions are driven more by customer demand than calorie content," said Barbara J. Rolls of Pennsylvania State University, study co-author. "Many place the responsibility on customers to consume amounts of food appropriate for their energy needs."

Condrasky sees the study as an opportunity to work with chefs. She is a leader in blending nutrition and food science with culinary arts in the new field of culinary. "The goal is to create foods that are good to eat and good for you," she said.

For more information: Marge Condrasky, 864-656-6554, mcondra@clemson.edu.

Marketing workshop supports small farms

Small-scale farmers from across the state learned direct marketing tactics at an August workshop held at the Sandhill Research & Education Center in Columbia. Sponsored by Clemson's sustainable agriculture program, the day-long workshop provided participants with an opportunity to tour the Sandhill Farmers Market held at the big red barn, where some 700 people shop each week for local produce, rice, grits, meat, milk, eggs, honey, flowers and baked goods. Additional workshops on small-scale, diversified and sustainable farming are offered throughout the year. For more information: www.clemson.edu/scg/sust/ or Geoff Zehnder, 864-656-6644, zehnder@clemson.edu.



Photo by Kelly Gilkerson

Talented high school students conduct research at Clemson

By Diane Palmer

Thirty-one rising high school seniors spent six weeks at Clemson this summer in a research program for academically talented students. Sponsored by SC Life, the program encourages students to pursue careers in science, mathematics or technology.

Each student worked with a faculty mentor to conduct original research in biological sciences; entomology, soils and plant sciences; genetics and biochemistry; chemistry; physics; and engineering. Twenty-three students were from the S.C. Governor's School for Science and Mathematics and eight were from high schools around the state.

At the end of the program, the students presented their findings in a poster session. They will also present at the S. C. Governor's School for Science and Mathematics Research Colloquium in February and the S.C. Junior Academy of Sciences in March.

A \$5.4 million award from Howard Hughes Medical Institute funds SC Life, which provides life sciences education for middle and high school students and teachers.

For more information: Cora Allard at (864) 656-0721 or callara@clemson.edu.



Photo courtesy of SC Life



Photo by Carleton Giles

Summer camps serve kids from around the world

By Pam Bryant

Eleven students from Carpi, Italy, add to the growing numbers of youth from other countries that choose Clemson summer camps. The students and their chaperone came for a chance to learn about American culture, meet new friends, brush up on their English and just have fun.

"This is the first time we've experienced an American camp and I think it's great! Already, there is a strong connection between the students at camp," said chaperone Roberta Rinaldi. "I wanted them to see how American youth live, observe their habits and share differences in culture. 4-H Camp is just what I was hoping for."

In addition to 4-H camp, Clemson's Youth Learning Institute operates three other residential summer camps across the state. This year, campers came from Italy, the Ukraine, South Korea, all 46 counties in South Carolina, and from 12 other states.

For more information: www.ylicamps.com or Lori Guban, 864-878-1041, lguban@clemson.edu.

Campbell Scholar serves as tutor in two programs

By Kathy Woodard

Tony Webb, a junior elementary education major, has been selected as a Campbell Scholar for 2007-2008. A graduate of Pendleton High School, Tony serves as president of the Call Me MISTER cohort, a leadership and service program for African American males majoring in education.

Campbell Scholars tutor eight hours a week in elementary and middle school programs in the Clemson area, and receive a scholarship up to \$6,000 per year.

Tony tutors at Kellett Elementary School in Seneca for the Campbell Scholars program and in the Easley Housing Authority Project for Call Me MISTER. He also served as a mentor for Project Middle Passage, a summer residential camp for 6th and 7th grade African American males.

"I am excited about the challenge and opportunity to participate in both the Call Me MISTER and Campbell Scholars programs," Webb said. "I believe the Campbell Scholars program will add to the great experience I have had at Clemson in the field of education."

For more information: www.clemson.edu/servicealliance/.



Photo courtesy of Call Me MISTER



Photo courtesy of SCCSA

Commissioner's School targets agriculture careers

By Katie Hulse

High school juniors and seniors gathered at Clemson this summer for the fourth Annual South Carolina Commissioner's School for Agriculture. The intense, one-week program gives students a glimpse into the academic and career possibilities in agriculture and natural resources.

This year 32 students, including six from out of state, attended sessions on organic food, greenhouse production, athletic turfgrass management, animal and veterinary sciences, packaging science, and forestry and natural resources management. The group also visited the university's research farms, Clemson Experimental Forest, and the Walhalla Fish Hatchery.

Nearly 60 percent of the Commissioner's School alumni select majors in agriculture and the life sciences. The summer program, which helps students select a career path, is a partnership between the S.C. Department of Agriculture and the College of Agriculture, Forestry and Life Sciences.

Sponsors include Advocates for Agriculture, AgSouth, Clemson Agricultural Alumni Association, USDA Natural Resource Conservation Service, and county Soil and Water Conservation districts.

For more information: Katie Hulse, 864-656-656-6662, hulse@clemson.edu.



Photo by Bob Spalding

4H Teen Council elected

The 2008 4-H Teen Council was elected at the State 4-H Congress in July. The council plans and implements state-wide teen leadership events, including 4-H ambassador training, teen weekend and state congress. Members, from left, are: Amber Ettinger from Kinards as vice president, Courtney Lake from Saluda, Krissy Newton from Estill, Andrew Singletary from Nesses, Anna Pinson from Waterloo, Christopher Sumpter from Borden, Haley Bishop from Newberry, Markeice Shannon from Darlington as historian, Richard Gore from Chester as secretary, Kristen Hill from Moncks Corner as president, Ashley Reynolds from Bishopville, and Mayra Olvera from Walhalla.

Walhalla 4-H Club participates in national project

By Diane Palmer

Members of the Walhalla 4-H Club "Project Spirit" documented stories of local military veterans as part of the national veterans' history project, sponsored by Learn and Serve America.

Bob Lippert, 4-H youth educator, led club members as they videotaped interviews with veterans from the community. Two veterans served in World War II, two in Viet Nam and one in Korea. The interviews are archived by the Library of Congress on the Veteran's History Project Web page: www.loc.gov/vets/.

For more information: Bob Lippert, 864-656-3502, blpprt@clemson.edu.

South Carolina 4-H honors volunteers

By Diane Palmer

Each year, South Carolina 4-H recognizes outstanding volunteer leadership by presenting the Glen Krohn Award, named for the late assistant director of family and youth development. This year's winners are below.

Catherine Gholson, Richland County, has been a 4-H volunteer for four years where she assists the county coordinator with consumer judging, food demonstrations and military family reach-out trainings. She serves as president of her county leader's association and has served as chaperone to State 4-H Congress and Teen Weekend.

Rebecca Griggs, Kershaw County, helps club members and families keep records, serves on the advisory council and leads a horse club in a neighboring county.

Marc and Julie Molyneau, Lee County, chaperone regional events, serve on the advisory council, help with fund raisers, and work at the Sparkleberry Fair.

For more information: www.clemson.edu/4h/.

NSF grant expands biotech training

By Peter Kent

The National Science Foundation (NSF) awarded Clemson scientists an \$800,000 grant to expand biotechnology education in South Carolina.

Faculty from biosystems engineering and agricultural education programs received three-year funding to develop and pilot the biosystems technology Advanced Technical Education (ATE) initiative. The project will develop courses for high school, technical school and university students seeking work in bioprocessing industries.

Bio-based products, such as biopharmaceutical, nutraceutical and biofuel compounds, are a growing economic sector nationally, expanding from \$39 billion to \$198 billion since 1996. The goal of the ATE project is to increase the number of qualified technical program graduates to meet workforce demands.

First year participants are faculty at Clemson; Greenville Technical College; and eight secondary schools in Anderson, Greenville, Oconee and Sumter counties; and advisory board members.

For more information: Caye Drapcho, 864-656-0378, cdrapch@clemson.edu.



Photo by Tommy Wyche

Quiet Reflections: The Clemson University Forest

A 128-page book of color photographs by Tommy Wyche and text by naturalist John Garton captures the beauty of the 17,500-acre Clemson Experimental Forest in all four seasons. The Forest is home to more than 195 species of birds and 900 species of plants, and shelters creatures from butterflies to bears. Proceeds from the \$34.95 book support Forest research and education programs. To order: www.clemson.edu/psapublishing/ or toll-free 888-772-2665.

Appointments

Della A. Baker, state leader for Extension staff development, is serving as president of Epsilon Sigma Phi, a national Extension organization that promotes professional development and standards of excellence. South Carolina hosted the national convention this fall in Charleston, with 300 delegates from 47 states attending 25 workshops.



Mary M. Beck, a poultry physiologist from the University of Nebraska, has joined Clemson as chair of animal and veterinary sciences. She sees her role as an enabler, helping faculty and students reach their potential. Her focus is expanding the graduate program, developing the curriculum and faculty, and creating a diversified research mix to meet industry needs.

Jorge Calzadilla, director of the Youth Learning Institute, is serving as an adviser for The National Forum on Children and Nature. The Conservation Fund initiative addresses issues that affect children's health and environmental stewardship by developing nationally significant demonstration projects.



Patricia A. Layton, Clemson forestry and natural resources chair, has been re-appointed to the USDA Advisory Committee on Biotechnology and 21st Century Agriculture (AC21). The AC21 was established in 2003 to examine the long-term impact of biotechnology on the U.S. food and agriculture system and USDA.

Steve Meadows has been appointed associate director of state Extension Field Operations. His new duties include working with program team leaders and agents across the state. Director of the Edisto Research & Education Center for more than 10 years, Meadows will be succeeded by John Mueller as interim director.



John Mueller has been named interim director at the Edisto Research & Education Center. He has conducted research and outreach at the center for 24 years, focused on plant pathology in cotton and soybeans. His recent efforts helped establish statewide sentinel plots for early detection of Asian soybean rust.



Lucy's Tasty Treasures promotes healthful eating

By Diane Palmer

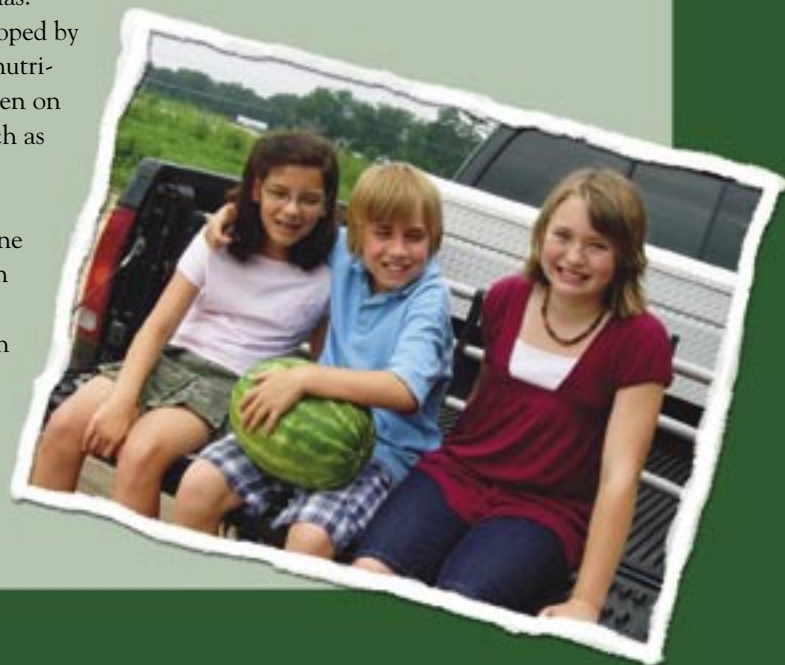
A new program that takes a farm-to-table approach to promote healthful eating and physical activity is being offered to elementary schools this year through DVDs, family newsletters, student activity books and photo-novellas.

The program, called "Lucy's Tasty Treasures", was developed by Katherine Cason, state program leader for food safety and nutrition, to help combat the obesity epidemic. It follows children on a treasure hunt to locate and learn about healthy foods, such as fruits and vegetables, dairy and whole grains.

The curriculum is being used in 30% of South Carolina schools, with orders from approximately 100 teachers in nine other states. It is also used by Expanded Food and Nutrition Education Program (EFNEP) educators in more than 260 schools and by the non-profit Zest Quest® children's health initiative in 14 schools.

Additional information, recipes, games, a blog, and order form for the DVDs are at www.clemson.edu/lucystastytreasures/.

For more information: Katherine Cason,
864-656-0539, kcason@clemson.edu.



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